

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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PCT

To:

Group IP Department  
BAE SYSTEMS PLC  
Lancaster House, P.O. Box 87  
Farnborough Aerospace Centre  
Farnborough, Hampshire, GU14 6YU  
GRANDE BRETAGNE

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

25.08.2004

Applicant's or agent's file reference  
XA1680

IMPORTANT NOTIFICATION

International application No.  
PCT/GB 03/00870

International filing date (day/month/year)  
28.02.2003

Priority date (day/month/year)  
05.03.2002

Applicant  
BAE SYSTEMS PLC et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



European Patent Office - Gitschiner Str. 103  
D-10958 Berlin  
Tel. +49 30 25901 - 0  
Fax: +49 30 25901 - 840

Authorized Officer

HALBARTSCHLAGER, M

Tel. +49 30 25901-714





Form PCT/PEA/416 (January 2004)

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## PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference XA1660		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/00870	International filing date (day/month/year) 28.02.2003	Priority date (day/month/year) 05.03.2002	
International Patent Classification (IPC) or both national classification and IPC G06F17/60			
Applicant BAE SYSTEMS PLC et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 3 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the International application</p>			
Date of submission of the demand  05.09.2003		Date of completion of this report  25.08.2004	
Name and mailing address of the International preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10968 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840		Authorized Officer  Pose Rodríguez, J Telephone No. +49 30 25901-655 	

Form PCT/PEA/409 (Cover Sheet) (January 2004)

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**International application No. **PCT/GB 03/00870****I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

**Description, Pages**

1-11 as originally filed

**Claims, Numbers**

1-9 filed with telefax on 29.03.2004

**Drawings, Sheets**

1/2-2/2 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**EXAMINATION REPORT - SEPARATE SHEET**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The following documents D1, D2, D3 are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

**D1:** DAWIT YIMAM: 'Expert Finding System for Organizations: Domain Analysis and the DEMOIR Approach' GMD-GERMAN NATIONAL RESEARCH CENTER FOR INFORMATION TECHNOLOGY, [Online] 2000, XP002239031 Retrieved from the Internet:  
<URL:http://citeseer.nj.nec.com/yimam00expert.html> [retrieved on 2003-04-22]

**D2:** US-A-6 076 088 (LIDDY ELIZABETH D ET AL) 13 June 2000 (2000-06-13)

**D3:** WOOJIN PAIK, ERIC BROWN, MARYJANE POULIN, STEPHANE DUBON, CHRISTOPHE AMICE : 'Applying natural language processing (NLP) based metadata extraction to automatically acquire user preferences' PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON KNOWLEDGE CAPTURE, [Online] 23 October 2001 (2001-10-23), XP002239032 Retrieved from the Internet:  
<URL:http://portal.acm.org/citation.cfm?id=500737.500757&coll=portal&dl=ACM&type=series&idx=SERIES056&part=series&WantType=Proceedings&title=KCAP> [retrieved on 2003-04-22]

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2. The present application does not meet the requirements of Article 33(1) PCT, because the subject-matter of claims 1, 7, 8, 9 is not inventive in the sense of Article 33(3) PCT.

- 2.1. Document D1 discloses the following features of amended claim 1 (the references in parenthesis referring to D1):

- 1 A method for ranking creators of a set of documents in order of their expertise in a subject (page 6, line 4-6; page 10, line 31-32; page 11, line 16-23; page 13, line 12-16; table 1) including the steps of:
  - 2 selecting documents from the set of documents that refer to the subject to create a subject related subset of documents (page 15, line 25-27; fig. 2);
  - 3 selecting extracts from the subset of documents that refer to the subject (page 10, line 8-11; page 13, line 27-35; page 15, line 2-5; fig.2);
  - 6 and using the analysis to rank the creators (page 10, line 30-32)

The only difference between claim 1 and the closest prior art document D1 are the following features:

- 4 analysing the linguistic structure of the extracts by isolating verbs in the extracts to create a set of verbs for classification;
- 5 classifying each isolated verb in the set of verbs according to a predetermined hierarchy;

An objective problem, which would occur in D1 and which is solved by this feature would be:

- how to create a more accurate expertise ranking improving the information extracted from the documents.

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Document D1 describes the problematic of finding the best expertise based in the extracts from different types of documents (including emails, see **Table 1**). As it is described in **page 13, line 18-35** of document D1, the expert finding applications should be able of interpreting the concept-to-document relation beyond the container-contained relation (**page 13, line 27-28**). This gives a key indication about the need of extracting and interpreting information from the documents when analysing these documents.

For this purpose, it is very well known in the field the use of NLP techniques.

This will guide the skilled person to search in the prior art for methods to extract information from documents and be able to interpret this information.

Further more, document D1 already describes the need of differentiating between information found in different parts of the documents, giving different weighs to each one (**page 13, line 27-35**).

Since document D1 indicates a method to search for expertise indicators in electronic documents using extraction techniques (**page 10, line 6-7**), the skilled person would consult the document D2 of the prior art which discloses a extraction system. This system extracts information from text analysing the linguistic structure (see document D2: **column 9, line 44-50**) and matches each verb with a concept of the Conceptual Hierarchy database (**column 12, line 47-49, column 12, line 65-66**). This process implements a hierarchy classification of the verbs.

The person skilled in the art would apply this knowledge to solve the problem, specially in this context would apply this to D1 to arrive at the solution of claim 1.

Therefore, the subject-matter of claim 1 lacks inventive step (Article 33(3) PCT).

2.2. Independent claims 7, 8, 9 correspond to independent claim 1, and thus the subject-matter of these claims is not inventive (Article 33(3) PCT) for the same reasons as claim 1.

3. Dependent claims 2-6 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step (Article 33(3) PCT), the reasons being as follows:

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**3.1** Claim 2 is not inventive because the only additional feature ("...creating the predetermined hierarchy by mapping isolated verbs to an illocutionary verb in a predefined set of illocutionary verbs and classifying the mapped isolated verbs according to the Speech Act Theory category of the corresponding illocutionary verb") is a mere choice which the skilled person would take depending on the circumstances, without any inventive skill, nor surprising technical effect, in order to classify the verbs. Furthermore, the use of Speech Act Theory in the field of extraction techniques based on Natural Language Processing - NPL, is a standard procedure in this kind of applications (see, for example, document D3: page 116, column 1, line 17-21)

**3.2** Claim 3 is not inventive because the only additional feature ("...filtering isolated verbs not having a predefined illocutionary verb and thus not successfully mapped to the set of illocutionary verbs and; checking for synonyms of the unmapped isolated verbs, that have a predefined illocutionary verb and classifying the unmapped isolated verbs according to the Speech Act Theory of the corresponding illocutionary verb of it synonym") is disclosed in document D2 (column 12, line 65-66).

The use of Speech Act Theory to implement this classification is a mere choice which the skilled person would take depending on the circumstances, without any inventive skill, nor surprising technical effect, in order to classify the verbs.

**3.3** Claim 4 is not inventive because the only additional feature ("...decomposing sentences in the extracts into a group of grammatically-related phrases, such as "noun", "adverb", "adjective", "verb" or "preposition") is disclosed in document D2 (column 12, line 32-43).

The skilled person would regard it as a normal option to include this feature in the method described in document D1, thus arriving at the feature described in claim 5.

**3.4** Claim 5 is not inventive because the only additional feature ("...weighting extracts to favour those written in the first person over those written in the third person")



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does not add any technical features of inventive significance to the subject-matter of the application.

- 3.5 Claim 6 is not inventive because the only additional feature ("... wherein the set of documents is e-mail communications") is disclosed in document D1 (page 8, line 5-6).

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## CLAIMS

1. A method for ranking creators of a set of documents in order of their expertise in a subject including the steps of:
  - 5 selecting documents from the set of documents that refer to the subject to create a subject related subset of documents;
  - selecting extracts from the subset of documents that refer to the subject;
  - analysing the linguistic structure of the extracts by isolating verbs in the extracts to create a set of verbs for classification;
  - 10 classifying each isolated verb in the set of verbs according to a predetermined hierarchy; and
  - using the analysis to rank the creators.
2. A method for ranking creators of a set of documents according to claim 1 including the further step of:
  - 15 creating the predetermined hierarchy by mapping isolated verbs to an illocutionary verb in a predefined set of illocutionary verbs and;
  - classifying the mapped isolated verbs according to the Speech Act Theory category of the corresponding illocutionary verb.
3. A method for ranking creators of a set of documents according to claim 2 including the further step of:
  - 20 filtering isolated verbs not having a predefined illocutionary verb and thus not successfully mapped to the set of illocutionary verbs and;
  - 25 checking for synonyms of the unmapped isolated verbs, that have a predefined illocutionary verb and;
  - classifying the unmapped isolated verbs according to the Speech Act Theory of the corresponding illocutionary verb of it synonym.

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5. A method for ranking creators according to any preceding claim wherein isolating verbs includes the step of:  
decomposing sentences in the extracts into a group of grammatically-related phrases, such as "noun", "adverb", "adjective", "verb" or "preposition".
5. A method for ranking creators of a set of documents according to any preceding claim including the step of:  
weighting extracts to favour those written in the first person over those written in the third person.
6. A method for ranking creators according to any preceding claim wherein the set of documents is e-mail communications.
7. A computer programme executable to rank creators of a set of documents in order of their expertise in a subject according to the method of any preceding claim.
8. A computer programmed to rank creators of a set of documents in order of their expertise in a subject according to the method of any of claims 1 to 6.
9. A computer to rank creators of a set of documents in order of their expertise including means for:  
selecting documents from the set of documents that refer to the subject to create a subject related subset of documents;  
selecting extracts from the subset of documents that refer to the subject;

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analysing the linguistic structure of the extracts by isolating verbs in the extracts to create a set of verbs for classification, and classifying each isolated verb in the set of verbs according to a predetermined hierarchy and using the analysis to rank the creators.

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